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ENVIRONMENTAL QUALITY

No. 310

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DELHI MEETING DISCUSSES DRINKING WATER SUPPLY

New Delhi PATRIOT in English 10 May 81 p 10

[Text]

EVERY second Indian is drinking dirty water. An estimated 36 crores people in villages and 2.7 crore in urban areas have still no provision of drinking water at present, according to Government surveys.

The sanitation figures project an equally bleak picture. Only 39 crore people in urban areas, constituting 27 per cent of the urban population, and one crore people in rural area, accounting for a mere 2 per cent of the rural population, have some sanitation facilities.

These statistics were brought out at a one-day symposium on "Indian and International Drinking Water Supply and Sanitation Decade" organised jointly by the World Water and Delhi Science Forum in the Capital on Saturday. (1981-1990 A.D. is being observed as the International decade for water supply and sanitation facility).

The symposium observed out of an estimated 14.4 crore urban population, only 11.8 crore enjoy drinking water facilities. However, it noted, that not all sections of population in the urban areas were getting adequate water.

The per capita consumption of water in urban areas, the survey shows, varied from 10 to 400 litres a day. In some cases, it says a mere 5 to 15 litres were available for consumption.

The water supply in urban areas in future, the symposium suggested, should be provided to those who had not yet been covered and to augment the existing supplies to bring up the level of per capita consumption to 70 to 200 litres depending upon the population concentration.

In the rural sector, provision of water has not made any headway, according to surveys. Out of 153 lakh problem villages identified in 1972, only 40,000 villages had been covered till 1977. The speakers claimed that due to increase in population and the number of villages, the problem villages had increased to 2 lakh in 1980.

(A problem village has been defined as one having drinking water source less than 1.6 km away, or where the water is available within a depth of 50 feet or if it is endemic to diseases.)

Regarding sanitation, the symposium observed that only 27 per cent of the areas have been covered in the urban sector so far.

At this rate, it has pointed out that three-fold rise in the level of coverage of sanitation has to be effected during the decade.

The symposium also highlighted that in towns where sewerage facilities exist, only a part of sewerage was treated and the rest led on to land for agricultural purposes or discharged into water courses.

Rural sanitation, it was claimed at the symposium, has been most neglected upto now. The target for providing sanitation facilities by 1990 has been fixed at 25 per cent, from the present 2 per cent. Expressed in figures, 14 crore rural people have to be covered during the decade which means a 14-fold increase.

Speakers at the symposium stressed that problem of water supply and sanitation in the country were of enormous proportions and steps were essential to bring the situation under control soon.

The symposium has recommended that the allocation under this head which is only 4,000 crores should be increased by 1,500 crores to meet the target fixed during the decade. It has also suggested creation of Rural Water Supply Corporation to tackle the problem of drinking water in villages.

KERALA'S PROBLEMS WITH WATER, SALINITY DESCRIBED

Madras THE HINDU in English 13 May 81 p 8

[Text]

WHEN the neighbouring States are afflicted by drought, Kerala is fortunately free from such a situation. Not that the summer, though rather severe this year, has not caused problems, but only that they have not been of such dimension.

During the South-West Monsoon period (June to September) in 1980, Kerala, in general, received normal rainfall. Certain pockets in the northern districts of Kerala actually received rain slightly in excess. Only in Trivandrum district, rainfall during this period was less, nearly 40 per cent below normal.

In the North-East Monsoon period also (October to December), Trichur, Cochin, Ambalapuzha, Karthigappalli and Palghat taluks, the central region of Kerala received excess rainfall. But, it was deficient generally in the other parts. Trivandrum received an annual rainfall of 157 cm as against a normal of 180 cm.

During the summer season also, most parts of Kerala used to receive rains, enough to reduce the temperature. This year it was not so and rainfall was below normal in most of the taluks. Most parts received some rain during the last week. Rainfall for the season in Trivandrum was normal. This phenomenon, a corollary of the peninsular weather conditions, had caused water scarcity in some regions.

Drought is unknown in Kerala which is endowed with 41 west-flowing rivers and has an average annual rainfall of 352.7 cm. Farmers generally benefit by a number of irrigation and hydro-electric projects on these rivers. There is, however, the complaint that purnja crop does not get water in required quantity. Tail-end farmers of Chalekudi project in Trichur district have complained of non-availability of water.

According to official sources, this problem cannot be solved immediately. For,

the irrigation projects have been designed to give water for two crops alone, and as such the third crop 'purnja' cannot have irrigation. To get over this difficulty and also to utilise fully the water resources, the Command Area Development Programme is being implemented in the 10 irrigation project areas. A total of 10,000 hectares are planned to be covered during the current financial year through field channels and field drainage.

Another problem in the wake of less rainfall and regulated flow in the rivers is the increase in the salinity in soil in the Kuttanad region and 'Kole' land of Trichur district. As the flow in the rivers which empty into the backwaters of Kuttanad is curtailed, sea water incursion takes place, resulting in making the water meant for irrigation saline. This situation will ease once the South-West Monsoon, due from May end, starts.

Day temperatures reported by the observatories during this summer were generally above normal by one or two degrees Centigrade. Palghat recording the highest 40°C. This is attributed to the below normal rainfall and decreased clouding of the summer season.

While the rainfall deficiency has not caused much of a problem on the farm front, drinking water supply, particularly in the coastal areas in the midland and upland regions, is not quite satisfactory. In the coastal areas, the problem is saline water intrusion. The lowering of the water table and the rocky formation pose hurdles in the other regions.

A special drive has been launched by the Public Health Engineering Department to tackle drinking water supply problem in general, and to meet the scarcity experienced during the summer months. According to Mr. N. S. Bhairaven, Chief

Engineer, PHED, it has been possible to maintain normal water supply in most places.

It has also been possible to improve the supply in certain areas. Emphasis is also being laid on rural schemes by locating fresh water sources, installing more pumps and increasing the capacity of the existing pipelines.

But it is true, the residents in the city limits have to stand in queue for drinking water supply. For instance, on the Trivandrum-Kovalam road one could see such rows of vessels. To certain other centres north of Trivandrum city, the civic authorities and PHED authorities carry water in tankers for supply to the residents.

These scenes can be witnessed in different parts of Kerala, particularly in the water-logged regions of Kuttanad and also in upland regions. In the High Ranges area people have to walk quite a distance to get water from the drying up rivulets.

The authorities for some time now have been taking steps to improve the drinking water supply. In fact, Kerala is the first State in the country to make use of the institutional finance provided by the Life Insurance Corporation for water supply schemes.

The LIC has so far granted over Rs. 30 crores for the urban (Rs. 28.21 crores) and rural (Rs. 2.21 crores) water supply schemes. Both the civic authorities and the Rural Development Corporation have made use of the facility.

To augment the supplies, new pipelines have been laid to increase the supply by about 30 per cent in the Greater Cochin area. In Paighat, a new line has been laid and a new treatment plant will be set up soon to purify the Malampuzha waters and double the supply.

Supply to Trivandrum will be improved from 18 million gallons a day to 24 million gallons in the course of the next year, following the expansion of the headworks at Aruvikara. The Peppara dam coming up in the upper reaches of the Karamana river, the source for Trivandrum water supply, will also be completed by June next year.

Normal supply is being maintained in Calicut, Alleppey, Kottayam, Trichur, Cannanore and Quilon. Probably the only urban place where some serious problem is felt is Badagara.

The World Bank has come forward to give assistance for some selected water supply and augmentation schemes. The district township water supply scheme is the first such scheme. Being an area in the coastal zone, Badagara experiences drinking water supply problems during the summer season due to the lowering of the water table.

The scheme now envisaged can make use of the waters in the Idukki reservoir.

Besides three other augmentation schemes for Cochin, Kottayam and Quilon, the World Bank-aided programme will be to look after 17 rural water supply schemes in different parts of Kerala. The programmes in all will involve an investment of Rs. 50 crores.

Even in normal days, water supply in the coastal areas has had the problem of salinity of well water. In the Kuttanad region, water is brackish. A scheme has been drawn up to cover Kuttanad area and also the two coastal areas of Vakkom-Anjengo in the south of Nattika in Trichur district.

Termed as 'bilateral projects', these programmes will receive assistance from the Netherlands. Already some work has been done in Kuttanad and Vakkom-Anjengo areas. The remaining part of the work will require about Rs. 18 crores.

Giving a filip to the measures taken already is the "decade programme" which commenced in January this year. The programme aims at providing water supply for the entire population in the State by 1991, and ensuring sanitation facilities for cent per cent of the population in class one cities, 80 per cent of the overall population in other centres and 25 per cent in rural areas.

At present, 65 per cent of the urban population has been given water supply benefits. The financial targets to be achieved is around Rs. 600 crores for the water supply and sanitation schemes in the urban and rural areas.

Of late, some importance has been attached to the tapping of the ground water resources also. The prospects of tapping this source are rated high in the coastal regions of Quilon and Alleppey districts. A preliminary resource evaluation of groundwater potential in Kerala has revealed a renewable reserve of 7,540 million cubic metres of groundwater. Only 20 per cent of this is utilised now. Schemes are also under way for tapping the source to benefit tribal areas and development of foot-hill zones. The source can be utilised for drinking purposes and for irrigation needs.

In the Kuttanad region in Alleppey, the Central Groundwater Survey Department has taken up digging wells in six centres. The PHED is also to receive shortly two powerful drilling rigs from the UNICEF.

Kerala is blessed with nature's bounty but the increasing density of population has led to the denudation of forests on a large scale, upsetting the ecological balance. Even the changes in weather conditions are attributed to this factor and experts feel the situation calls for some controls.

HIGH LEVELS OF EROSION LOAD RIVERS WITH SILT

Jakarta KOMPAS in Indonesian 21 Mar 81 p 9

[Excerpt] Among the islands of Indonesia, Java, besides being densely populated, has the most seriously affected watershed. Most of the soil in this area is being continuously eaten away by erosion, so that compared with other areas, the condition of the greater part of the river basins in Java has reached "a most critical point."

Sources of "Kompas" at DPMA [Directorate for the Research of Water Problems], Directorate General for Irrigation, disclosed that the indicators of watershed damage, i.e., the percentage of silt in rivers, the transportation of silt by rivers, and the intensity of erosion, have shown a continuous upward trend year in and year out, particularly in certain large watersheds.

There are five large rivers on the island of Java: the Cimanuk River, Citanduy River, Citarum River, Bengawan Sala (Solo River) and Brantas River. Of these five rivers, the Cimanuk River and its three tributaries in West Java are the rivers worst affected by silting.

According to those sources the Cimanuk River, with its watershed of about 3,200 km², carries off 25 million tons of silt a year, i.e., an average of 7,810 tons a year.

The level of erosion in the Cimanuk watershed is nine times greater than in 1952, while that of the Cilutung watershed, a tributary of the Cimanuk, is eight times greater than in 1911.

Erosion in the Cimanuk watershed in 1952 was only 0.6 mm a year, and in the Cilutung River in 1911 only 1 mm a year. By 1964 erosion levels had reached 5.3 to 6 mm a year in the Cimanuk watershed and 8 to 9 mm a year in the Cilutung watershed.

High levels of erosion also are found in the basins of the Citanduy, Cisanggarung, Pemali-Comal, Jratunseluna [the Jratung, Tuntang, Serang, Lusi and Juwana Rivers], Serayu and Bengawan Sala Rivers.

In the Pemali-Comal area, the level of erosion in the basin of the Kabuyutan River has reached 7.8 mm a year, the Comal River 7 mm a year, and the Cacaban River

23 mm a year. The Cisanggarung River basin, which marks the border between West Java and Central Java, has reached 8 mm a year.

The amount of soil that is eroded and carried off by the rivers each year comes to tens of millions of tons. The Cimanuk River carries off 25 million tons of silt a year, the Bengawan Sala 13.17 million tons, the Citanduy River 9.49 million tons, and the Brantas River 6.22 million tons. From the Citarum River "only" 3.79 million tons of silt is carried off each year.

According to the sources, the average silt percentage of some rivers on Java ranges from 939 to 5,520 mg/liter, and the maximum silt percentage from 1,510 to 20,300 mg/liter.

This is far higher than the average silt percentage in some rivers outside Java. Their average range is from 67 to 2,790 mg/liter, and the maximum range from 152 to 9,610 mg/liter.

Erosion levels in the watersheds of Java range from 0.1 to 23 mm/year. Outside Java the range is from 0.03 to 0.87 mm/year.

Some of the silt carried off is deposited at the bottom of the rivers and some builds up the mainland at the river delta. According to the sources, this condition can be seen in the expansion of the Cimanuk River delta in the north of Indramayu regency, and the Citanduy River delta in the south of Ciamis regency in West Java. Conversely, the watersheds on the upper course of the rivers continue to wear away.

7455

CSO: 5000/8014

INDONESIA

JAKARTA REGULATIONS ON AIR, WATER POLLUTION

Jakarta HARIAN UMUM AB in Indonesian 7 Apr 81 p 2

[Text] Jakarta, Tuesday--Air or water pollution in the Jakarta city area, including the offshore region, is a criminal offense punishable by a maximum of 6 months imprisonment or a fine of 50,000 rupiahs. Property or equipment used by the polluters is subject to confiscation.

So announced a spokesman for the Jakarta administration's Project for Promoting Awareness of the Law.

It was stated further that the throwing of trash or other waste material into rivers, marshes, ponds or other bodies of water, or into the ocean offshore Jakarta is forbidden. Also forbidden is the disposal into gutters connected to sewer conduits of any waste matter that may obstruct water flow and thus endanger public health.

Disposal into the city sewer system of chemical substances or other materials that may either directly or indirectly endanger public health, animal life or vegetation is also forbidden.

Included also in the city administration's prohibitory standards is the use of motorized transport vehicles that emit pollutants into the air which are hazardous to public health.

Further, industrial or corporate enterprises may not be established in the Jakarta area unless they implement the measures that have been approved to prevent pollution of the environment.

Each contractor or business firm that wishes to establish an industrial or corporate enterprise in the Jakarta area, therefore, is required to do the necessary paper work and seek special permission through the office of the governor (i.e. the Industry Office).

The request for permission must be accompanied by building construction plans, measures to halt pollution and proposals for a waste disposal system, so that authorities might better study the probable incidence of different kinds of pollution as well as ways to protect the environment.

Accordingly, all industrial concerns are required to comply with each of the regulations that have been enacted to control pollution in the Jakarta area.

The governor has given the task of enforcing the regulations to the chiefs and deputy chiefs of the Industry Office, the Office of Public Works, the Health Department, the Sanitation Department, the Fisheries Office and to other appointed officials.

9792

CSO: 5000/8015

NITRATE LEVELS IN GROUND WATER CAUSING CONCERN

Wellington THE EVENING POST in English 29 Apr 81 p 27

[Box]

THE growing level of nitrate in underground water supplies is a matter of concern to the Minister for the Environment, Dr Shearer.

He told a meeting of the Environmental Council in Wellington on Friday that he was particularly concerned about nitrate levels in ground water in the Waikato and in Christchurch.

He said the ammonia urea plant being established in Taranaki to use natural gas to make nitrogenous fertiliser would no doubt result in a greater encouragement for people to use fertiliser.

And he said that the Minister of Agriculture's comments on the great potential for horticultural exports to Japan could see a greater intensity of farming and hence a greater use of fertilisers.

"In the next two to three years I can see nitrate levels in ground water will be very much a problem."

In this, his first meeting with the council, he said he could see that this would be a matter which the council

could look at.

Dr Shearer said he was aware there was some concern in the council about the fact that reports it had prepared on environmental matters had been ignored by Government.

The council had at times wondered whether anything had been done with the reports, and if they were not used their work was not productive.

To avoid this situation, he said, he would like to change the council's ground rules.

He would like to be able to ask the council to look at certain areas of concern and by doing this the council could be sure that it had a client for the work it was doing.

The Government would receive input from the council and would be duty bound to do something.

He said the emerging problem of nitrate pollution

of ground water was one issue he would like them to look at.

Dr Shearer, who was appointed to his portfolio just 10 weeks ago, said he was taking a close look at the role of the council and the Commission for the Environment.

It was unfortunate that in the last decade the Government had tended to make developmental decisions which had not taken into account environmental effects.

"Some decisions have been made which should have had considerable environmental inputs," he said.

In answer to a question about the need to have a closer look at the better utilisation of resources used in development works, he said, "It's my task and yours to come up with a shopping list of advantages and benefits in resource savings accruing from environmental inputs."

DECISION ON ARAMOANA ALUMINUM SMELTER IRREVERSIBLE

Environment Minister's Stand

Wellington THE EVENING POST in English 1 May 81 p 3

[Text]

DUNEDIN, April 30 (PA). — The aluminium smelter proposed for Aramoana by South Pacific Aluminium Ltd will go ahead, and there is no possibility of the decision being reversed, the Minister for the Environment, Dr Shearer, said in Dunedin today.

Dr Shearer was speaking at an informal meeting of local body leaders in the Dunedin City Council chambers. He later met environmental groups opposed to the smelter, and attended a public meeting where he qualified his earlier remarks.

Dr Shearer told the local body group that his task as Minister for the Environment was not just to assess the environmental effects of the project but as a member of the cabinet, to assess the whole situation particularly in terms of employment potential and other opportunities afforded by the smelter.

"I'm keen to see the site and I'm keen to look at it from the point of view of a smelter there," Dr Shearer said.

I want to point out that, as you and I know, the decision has been made for a smelter to go in there. It is quite obvious that there is no possibility of that decision

being reversed, irrespective of what some people would like to say.

To ensure

"As such, my task is very much one of saying that the smelter is going to be there, and it is my task and duty to ensure that it has a minimum impact on the environment."

The smelter would have an environmental impact report and that would be audited by the Commission for the Environment. One of the benefits of the National Development Act was that the commission did have the statutory function of auditing the report, he said.

"As you and I know the company and all the people associated with it, will be ensuring that every possible avenue as far as environmental impact is concerned will be taken care of in that report."

Dr Shearer told the public meeting: "It seems to me that with all the work that has been put into it to get it to this stage, it is extremely unlikely that the environmental impact report will contain such deficiencies that would allow the project not to proceed."

"Now that may sound as if I'm pre-empting the decision that will have to come out of the Planning Tribunal hearings. It's not, in that I am the Minister for the En-

vironment, and the Commission for the Environment, which is very much an independent and separate entity and is not answerable to me, has the task of looking at the environmental impact report and doing the audit on it."

Clarified

The meeting was somewhat sparsely attended because of a lack of prior advertising, and most of those present were smelter opponents. They took up the minister's invitation to express their opinions on why they thought the project should not proceed.

One point was clarified, both for the minister and his audience, when the senior investigating officer for the Commission for the Environment, Mr P Gresham, explained in answer to a question that the three-month period when the impact report has to be audited, might not be adequate in some respects.

Mr Gresham said he had grave concern about the adequacy of the information that would be available about some aspects of the environmental impact by the end of the three-month period.

Continued Opposition Planned

Auckland THE NEW ZEALAND HERALD in English 29 Apr 81 p 3

[Text]

Press Assn Wellington

Groups against the proposed Aramoana aluminium smelter in Otago say they will continue to fight the development despite the approval for fast-track planning.

Approval to bring the \$650 million project under the National Development Act was contained in an order-in-council gazetted yesterday.

The Minister of National Development, Mr Birch, said that the eight local authorities in the Dunedin region had supported using the act to handle project planning.

Consents were required under town and country planning, water and soil, harbours, soil conservation and rivers control and clean air, local government and historic places legislation.

But Coalition for Open Government spokesman, Mr K. Johnson — representing conservation and environment groups — said last night that approval to use the act did not end debate on the project.

He said the key question was electricity supply and the agreement had not yet been signed.

"It is now five months overdue and looks like being some months off yet," he said.

NEED FOR GREAT CARE IN REVISING MINING ACT STRESSED

Auckland THE NEW ZEALAND HERALD in English 7 May 81 Sec 2 p 5

[Text]

Changes to a mining act which has served New Zealand well since its introduction (1936, and revised in 1971) should be considered with great care.

That view was expressed yesterday by the president of the New Zealand Mineral Exploration Association, Mr J. S. Lawrey.

Mr Lawrey said that the Link report, released last week, had identified the major issues which confronted the mineral industry in New Zealand, and suggested solutions.

The report was commissioned by the Government to assess issues of public concern.

In Agreement

Mr Lawrey said the association agreed in particular with the section of the report which said that "deficiencies in public knowledge and understanding of the procedures of the Mining Act, and to a lesser degree of the Town and Country Planning Act" were a major contributory cause of un-

certainly and lack of confidence in the Mining Act.

Mineral explorers in New Zealand were already strictly controlled and monitored by Government agencies, he said, and public access to the objection process was already wider than in many other procedures, including those of the Planning Act.

The Link report included proposals for strengthening environmental assessment procedures for proposed mining operations and the association supported the involvement of the Commission for the Environment in mining environmental impact studies, he said.

A clear and concise policy for developing the country's

mineral resources was a prerequisite for public understanding of the legislation and the consistent application of its provisions.

Investing \$1m

Mr Lawrey said that the mineral industry contributed more than \$150 million a year to the domestic economy and the companies which were members of the association would this year invest more than \$1 million on the search for minerals.

Confirmed and proposed mining developments were expected to involve expenditure of \$200 million over the next five years, he said, but the outlay could yield \$200 million a year in export income in the years beyond.

HEAVY METAL CONTAMINATION THREATENS HAURAKI GULF FISH

Auckland THE NEW ZEALAND HERALD in English 27 Apr 8. p 3

[Text] Coromandel--A call for mining companies to pay for a study of heavy metal contamination in Hauraki Gulf fish has been made by a scientist from the Ministry of Agriculture and Fisheries.

The fisheries management scientist, Mr R. Boyd, told a public meeting in Coromandel at the weekend that if heavy metals from mining got into the gulf, fishing might have to stop.

Both commercial and recreation fishing would be affected, he said.

The heavy metal contamination of fish in the area might already be close to danger limits, but no base-line data was available.

"It is my personal view that the mining companies should be responsible for funding base-line studies," said Mr Boyd.

He said the export-earning snapper fishery was most vulnerable to heavy metal pollution from such substances as mercury because snapper were relatively long-lived fish.

The gulf snapper fishery was New Zealand's largest in terms of profit, supporting fishermen from Auckland and the Bay of Plenty as well as the Coromandel Peninsula and earning millions of dollars annual overseas.

Mr Boyd said shellfish could also be affected by large-scale mining, being vulnerable to both heavy metals and sediments.

"There can be no doubt that without adequate environmental protection, mining could have disastrous effects," he said.

"And this time it is not clear where the environmental safeguards will come from. The present Mining Act does not provide adequate safeguards nor does the Water and Soil Act."

A Waikato University geochemist, Dr C. Hendy, told the meeting, which was organized by the Coromandel Physical Environment Association, that the Coromandel area had a particular problem with heavy metals.

he said about 100,000 tonnes of toxic tailings left behind at Te Aroha were causing serious problems but that the same amount would be produced in one or two days' work at a big open-cut mine.

Dr Hendy said that if the Hauraki Catchment Board had not done restoration work on the Te Aroha tailings in the 1970s, the entire tailings dump could have landed on the Te Aroha township during recent flooding.

The same toxic metals--arsenic, mercury, lead and cadmium--found on Mt Te Aroha appeared in a number of goldfields on the Coromandel Peninsula.

He listed the Tararu Creek behind Thames, the Waiomu Stream, Coromandel township rivers and Kuaotunu as particular problem areas.

"The upper Tararu Creek is still...essentially a sulphuric acid solution, 60 years after mining, and at Kuaotunu one shaft is discharging arsenic, another mercury."

Dr Hendy said open-cast mining in those areas would leave hundreds of thousands of tonnes of tailings each year.

Fishing could be ruined by the release of relatively small quantities of heavy metals.

CSO: 5000/9030

BRIEFS

LIQUID WASTE PROBLEM--Firms disposing of liquid wastes should be required to identify the material, according to Wellington Regional Council water resources officer, Mr Keith Davis. He told the water and soil management committee that while the disposal of toxic liquid wastes was not as bad a problem as earlier thought, there were still some problems. One was tip management, something Mr Davis said could be improved in respect of identifying and handling liquid wastes. "There is no real control over the disposal of this material. An inventory of volume is taken but not of content." In all, more than 7 million litres of liquid waste was disposed of annually in Wellington, 85 per cent at Silverstream Tip, 11 per cent at Porirua Tip and the rest at Careys Gully in Wellington or at Cottle's tip at Horokiwi. Most of the waste was oil waste or paint and paint residue. Mr Davis added that the areas allotted for liquid waste disposal were too large. Overseas they were compact and easy to manage. Other problems included waste being dumped willy nilly so that it ran down banks, killing bush and in some cases polluting streams. One safeguard the council had was an amendment to the Water and Soil Conservation Act which allowed water boards to grant water rights for waste discharges where natural water was likely to be affected. This meant the council could impose conditions to ensure water quality was not affected. Council officers are to meet officers from Wellington, Lower Hutt and Porirua city councils to formulate guidelines for the collection, carriage and disposal of liquid wastes. [Text] [Wellington THE EVENING POST in English 29 Apr 81 p 17]

HERBICIDE BAN REVERSALS--A reversal on its stand, and support for the use of the controversial herbicide 2,4,5-T by the Wellington City Council is probable. After months of argument, the council voted in March last year to restrict the use of the chemical--banning it altogether in Wellington's urban areas. The works committee yesterday voted narrowly to rescind that decision. The issue was revived by Cr Roger Ridley-Smith, who said he was satisfied that, according to the evidence, the health risk associated with the chemical was minimal. He said no one could ever be 100 percent adamant that any chemical was totally free from side-effects, but after 30 years of use in this country, 2,4,5-T had produced little or no evidence of harm to people's health. Cr Ritchie said that if the council reversed its stand it would ignore the wishes of the 3,000 people who signed a petition against 2,4,5-T when the issue was last debated in Wellington. The council's works department officers supported the move to lift the ban on the chemical. [Excerpts] [Wellington THE EVENING POST in English 7 May 81 p 13] The Wainuiomata District Community Council has approved the use of the weedkiller 2,4,5-T by its staff or council contractors. A motion was passed at last night's

council meeting lifting a ban which prohibited the use of 2,4,5-T by the council or contractors working on its behalf. The ban did not extend to private operators working independent of council. Introducing the motion Cr Len Little said council officers had shown how weedkillers other than 2,4,5-T lacked the ability to kill weeds. He said it appeared 2,4,5-T was no worse than any other weedkiller and much more effective. [Excerpt] [Wellington THE EVENING POST in English 12 May 81 p 34]

CR01 5000/9030

INTENSIFIED ENVIRONMENTAL PROTECTION URGED IN ZHEJIANG

Hangzhou ZHEJIANG RIBAO in Chinese 23 Mar 81 p 1

[Article by staff commentator: "Effectively Intensify the Work of Environmental Protection"]

[Text] Recently the State Council issued a resolution to intensify the work of environmental protection during the period of readjusting the national economy, and the Standing Committee of Zhejiang Province People's Congress has passed "Provisional Rules of Zhejiang Province for the Prevention of Environmental Pollution" and "Provisional Regulations of Zhejiang Province for the Collection of Fees and Fines To Eliminate Pollution." We must earnestly carry out these rules and regulations.

In recent years, our province has gradually made progress in the work of environmental protection and has achieved some results. However, as this work was neglected for a long time in economic construction, the situation of environmental pollution is fairly serious and has caused damage to natural resources and to the ecological balance. This is a conspicuous issue in the current development of our national economy. If we fail to take strong and effective measures to maintain strict control over further pollution and do not promptly solve this problem so as to stop the destruction of the natural environment, the consequences will be very serious.

To do a good job of protecting the environment we must strengthen leadership, raise the consciousness of the cadres, particularly the leading cadres and the leading persons at enterprises, and help them to understand that environmental protection is a fundamental task of modernization, wherein lie the basic interests of the broad masses of the people. The lack of equal attention to production and construction and to environmental protection was mainly brought about by the "left" mistakes in economic work. During the period of readjusting the national economy, we should follow the policy of making further economic readjustment and achieving further political stability, work in coordination with the various economic readjustment policies and measures, earnestly carry out all laws and regulations of the state on environmental protection, and intensify the work of protection in a practical way.

We must carry out extensively the work of propaganda and education in environmental protection, spread scientific knowledge in this field, and create a healthy attitude in society that "environmental protection is the responsibility of everybody." In keeping with the economic readjustment, we must publicize laws and regulations on environmental protection and give full play to their authority. We must earnestly sum up and publicize the experience of typical cases of pollution control, strongly commend units and individuals for their achievements in this work, bring into play enthusiasm for controlling pollution among enterprises and workers, and skillfully use exemplary cases to teach the cadres and promote the work of pollution control.

we must have specific requirements and measures for the control of pollution, and conduct this work step by step and in a planned way. The collection of fees for draining wastewater is an important measure of pollution control. This was enforced last year in the three cities of Hangzhou, Ningbo and Shaoxing with good results. It promoted the work of control in the factories, and partly solved the question of funds for this purpose. We must earnestly sum up our experience and introduce the collection of drainage fees as a general practice. To control pollution, we must draw up overall plans and pay special attention to key issues. At present, we must pay special attention to serious cases of factories situated in residential areas, protected areas with water sources and scenic spots. Hangzhou is a famous city with a long history of culture where the scenery of beautiful lakes and mountains is known throughout the world. By decision of the State Council, Hangzhou has been designated a key protected city. This calls for planning and strict control according to the characteristics of scenic cities. We must strive to grasp firmly and well the work of environmental protection in the city of Hangzhou.

To strengthen the work of environmental protection, we must do what is necessary and quickly set up protection offices and monitoring posts at all levels. According to the state laws on environmental protection and the "Provisional Rules of Zhejiang Province for the Prevention of Environmental Pollution," all departments and enterprises in the various places must make plans for the control of pollution in conformity with local conditions. All districts, departments and enterprises must work in close cooperation and coordination, give mutual assistance, and insure that the plans for pollution control can be successfully carried out.

0039

CSO: 5000/4059

INITIATIVE IN DESIGNING WASTEWATER TREATMENT DESCRIBED

Hangzhou ZHEJIANG RIBAO in Chinese 23 Mar 81 p 1

[Article by Ye Guangzhong (5509 0342 0022): "Wastewater Treatment Is Effective Through Self-Reliance"]

[Text] The Hangzhou Genshanmen power plant has given serious attention to environmental protection: it designed and installed sealed equipment for treating wastewater. The large flow of wastewater resulting from the production process goes through six precipitation tanks in turn for recycling treatment. The ash sediment from these tanks is carried away by truck to a brickyard for making bricks. With the installation of this sealed system, the running wastewater no longer flows out of the plant, while the recycled water is pumped back to the boilers for further use.

In this power plant the equipment is very old, and dust-removing devices are not efficient. Every day large quantities of wastewater escaped from the plant, doing serious damage to the neighborhood. The plant party committee realized that to help urban construction and for the benefit of the people, they must control the pollution caused by wastewater which directly endangered the operation of their plant. Therefore, they decided to tackle this problem and eliminate the evil. The committee secretary and the plant manager studied plans and prepared designs together with the technical personnel; then they carried out the construction, giving priority to the appropriation of the manpower, funds and materials required by the project. When there were technical difficulties, they encouraged the technical personnel to boldly break new ground and seek positive and reliable solutions. The construction of the precipitation tanks required a space 60 meters long and about 10 meters wide. In the plant the site of the ash dump was only 30 meters long, so the technical personnel suggested that six small tanks be built in the limited space and operated in turn. The plant leadership studied this plan, and adopted it as a practical solution to the actual conditions of the plant. Usually such tanks are made of reinforced concrete and require an investment of tens of thousands of yuan and more than 20 cubic meters of timber. At the time, the funds and material were not available. If bricks were used instead, the structure would not be strong enough. The plant leadership and the technical personnel carried out long and careful discussion, and decided to build the main structure of bricks and reinforce it with cement bands for support. Thus the difficulty was quickly overcome. From design and construction to operation, the project was completed within 5 months. Each year it will save 30,000 yuan in compensation for ash damage and other expenses. The total investment in the project will be repaid through the amount of compensation in only 3 years. As the project required a small investment but gave quick results, it received favorable comment from the concerned high level departments.

SOUTHEAST EUROPE ENGINEERS TO HOLD CONGRESS ON WATER PROTECTION

Belgrade TEHNIKA in Serbo-Croatian No 3, 1981 pp 385-386

[Announcement of congress to be held in Ohrid, Yugoslavia, in October 1981]

[Text] The Permanent Conference of Southeast Europe Engineers (CO.P.I.S.E.E.), which is made up of the Engineers and Technicians organizations of Bulgaria, Cyprus, Greece, Romania, Turkey and Yugoslavia, was established in 1972 and has as its purpose the development and promotion of exchange of experiences by engineers and technicians in the fields of engineering and economics related to matters of common interest and to the problems whose solution should contribute to technological development and the general progress of the member countries.

Purpose of the Congress

The First Congress on Water Protection, which was held in Yugoslavia (Belgrade, 1976), it is generally thought, contributed through its results to informing the member countries of the Permanent Conference of Southeast Europe Engineers more widely about national policies and other aspects of the approach to studying water protection.

Taking as its point of departure the resolutions of the first congress and following the subsequent development of this important activity, the second congress is a continuation of the exchange of experiences through the presentation of results in the study of water quality, the development of technology for treatment of sewage, and also in monitoring influences and impacts on water protection.

The results of the Second Congress on Water Protection should contribute to improvement of activities by the countries of southeast Europe in protecting the quality of water both on a national basis and also through developing cooperation in this region. This would contribute to the efforts of the European countries and the international community to solve the complicated problems of protecting water quality more effectively in the future.

Basic Topic Scheme

Topic I--Organization of Water Protection

The papers are to highlight specific results in the actual organization of task performance in the field of water protection as a significant illustration of method in setting up systems and achieving goals in protection.

The examples are to be classified according to the type of entity treated:

1. River watersheds,
2. Seacoast,
3. Lakes,
4. Specific entities (groundwater and the like).

Topic II--Sources of Pollution

The papers are to cover important results in research, analysis and control of various sources of pollution.

Especially interesting are the questions of the type and principal characteristics of conventional and other sources of pollution and the questions of general variations in the characteristics, surge loads and other phenomena which characterize various sources of pollution. It would be desirable in this connection to emphasize experience in taking readings, in control, in design of protective measures, that is, in the general treatment of sources of pollution as an important question in any system of protection.

The examples are to be classified according to the principal types of sources of pollution:

1. Concentrated sources of pollution
 - a. collective sources of pollution (settlements interrelated with other sources of pollution),
 - b. sources of pollution of industry and mining,
 - c. other sources of pollution,
2. Dispersed sources of pollution
 - a. urban areas,
 - b. farming areas,
 - c. other areas,

3. Other sources of pollution

Topic III--Development of Technology in Water Protection

The papers are to treat individual issues in the development and improvement of technology used in the principal measures and procedures of water protection--sewage treatment.

The example should cover development of technology in the treatment of sewage and sludge in the broader sense, from measures to reduce pollution at the source through conventional procedures to specific technologies in treatment and preliminary treatment of effluents in industry, mining and other branches of the economy.

There is particular interest in the development and application of innovations in the technology of sewage treatment.

There is also interest in the intensification of processes in conventional schemes of equipment and the technology for treating municipal sewage, as well as in the use of compact and standard pieces of equipment.

Examples of the development of technology are to be systematized according to the principal character of procedures:

1. Measures in the process of production of goods
2. Technology of preliminary treatment and treatment of sewage
 - a. mechanical procedure,
 - b. biochemical procedure,
 - c. chemical procedure,
 - d. physicochemical procedure,
3. Technology for treating sludge
 - a. mechanical procedure,
 - b. physicochemical procedure
4. Compact and standardized pieces of equipment for sewage treatment

Topic IV--Experiences With Monitoring in Water Protection

The example should cover aspects of the problems of systems and system components for monitoring water quality and for surveillance and inspection in the field of water protection. Especially important are examples and criteria of optimum organization of monitoring system, of arrangement of information flows, of ties with other monitoring systems, etc.

The examples are to be systematized according to the principal water quality monitoring systems:

1. Monitoring the quality of surface water
2. Monitoring the quality of concentrated sources of pollution
3. Monitoring the quality of dispersed sources of pollution
4. Other monitoring

Organizer of the Congress

Savaz inženjera i tehničara Jugoslavije [Federation of Yugoslav Engineers and Technicians]

Organizational Committee

Vasa Micanovic--chairman, Kiril Apostolaki, Gradimir Bozic, Damjan Brankovic, Djordji Filipovski, Lazar Ignjatovic, Milija Jovicic, Vera Johanides, Janez Kokol, Milica Komac, Branko Kurpjel, Milorad Miloradov, Zarko Ostojic, Momcilo Peles, Bosko Petrik, Luka Radojicic, Nedeljko Raicevic, Caslav Rundic, Mihailo Serafimovski, Nikola Spahic, Mila Stanojevic, Mustafa Sahani, Dragan Sojlevski, Konstantin Vasiljevic, Ivanka Vuletic, Savo Vukcevic, Vladimir Zubkovic--members.

Languages To Be Used in the Proceedings

The working languages of the congress are English, French and Serbo-Croatian.

Notice of Papers

a) Those interested in submitting papers should give notice of their participation by submitting the titles and summaries of the papers.

Two copies of the summary 1-2 typed pages long, including illustrations, in English, French and Serbo-Croatian, should be sent to the Organizational Committee no later than 20 April 1981.

b) Confirmation of acceptance of the papers announced and instructions for their preparation will be sent to the authors no later than 25 April 1981.

c) The papers accepted (original and one copy), not to exceed eight typed pages in length, including illustrations, in one of the official languages of the C.O.P.L.S.E.E., English or French and one of the languages of the nationalities of Yugoslavia, must be in the hands of the organizers no later than 31 May 1981.

A collection of the materials of the congress will be published before the congress is held.

Notification of Participation and Registration Fees

The participants in the congress should fill out the enclosed notification of participation and send it to the organizing committee no later than 10 June 1981.

The registration fee per participant is 2,500.00 dinars and should be paid to the giro account of the Federation No 60803-678-4270 and marked "2a Kongres CO.P.I.S.E.E." [For the Congress of the CO.P.I.S.E.E.].

The registration fee covers participation in the congress and the accompanying program as well as the congress materials. The authors of the papers, one of the authors in the case of collective papers, are exempted from payment of the registration fee.

Other Information

a) There are plans to set up a specialized exhibition in the field of water protection during the congress. Interested organizations and manufacturers of equipment and supplies are invited to contact the Organizational Committee in connection with participation in the exhibition.

b) The organizing of trips by the congress is planned as part of the program.

c) Advertisements may be placed in the collection of congress materials which will be sent to all participants and guests, all federal, republic and provincial agencies and organizations and the organizations of the member countries of CO.P.I.S.E.E., in a printing of 1,000 copies, under the following conditions:

i. monograph or information covering at least one printed page in B5 format in two colors (black-white), at a price of 5,000 dinars per page 1/1,

ii. for monographs or information of a work organization covering more than two pages, the reduction is 20 percent,

iii. inclusion of an insert of printed materials in B5 format supplied by work organizations--2,000 dinars per printed page.

The deadline for submittal of material is 31 May 1981.

d) The organizer of the congress has a certain number of copies of the Collection of Papers of the First CO.P.I.S.E.E. Congress on Protection of the Water of Seas, Lakes and Rivers, which was held in Yugoslavia (Belgrade, 1976), which can be delivered on request at a price of 200 dinars.

e) All necessary information in connection with the congress can be obtained from the following

Savez inženjera i tehnicara Jugoslavije [Federation of Yugoslav Engineers and Technicians]

11000 Beograd, Kneza Milosa 9/II

tel. (011) 335-816

The office hours of the Organizational Committee are from 0800 to 1500 hours every working day.

AD HOC WATER POLLUTION COMMITTEE RECOMMENDATIONS

Amman AL-RA'Y in Arabic 11 Apr 81 p 2

[Article: "A Memorandum to The Council Of Ministers Includes Recommendations of the Ad Hoc Water Pollution Committee"]

[Text] Mr Hasan al-Mumani, minister of Municipal and Rural Affairs and chairman of the Ad Hoc Water Pollution Committee, transmitted the committee's recommendations to the Council of Ministers. The recommendations included preventive measures for immediate application to protect water from pollution, and organization and administrative proposals for a long range plan. One of the preventive measures suggested by the committee is the immediate need for the development of a national plan to protect the water resources. This plan should rest on a foundation of foresight to prevent the spread of the harmful effects of various industrialization and development projects to the water resources. These recommendations include:

- Updating laws and preventive measures to combat water pollution and promote conservation of water.
- Establishing effective major centers for water resources and their basic and recording and verifying levels and types of pollution.
- Taking proper action to combat pollution resulting from water waste, oils, refuse, chemical waste, and the activities of tourism and industry.
- Observing agricultural activities in order to control pollution resulting from the use of organic fertilizers, chemicals, and pest control substances.
- Determining the use of land according to integrated developmental plans in order to preserve the areas of the underground water supplies.
- Establishing accurate boundaries for each water basin taking care to avoid the damage of pollution.
- Collecting and analyzing data to determine the type and extent of pollution in the water area and suggesting necessary solutions.
- Setting up training programs in the water fields for growing Jordanian skills. These training programs should include domestic and foreign training sessions as

well as specialized studies and field visits to water projects in developed countries, in order to build up a system capable of planning, programming, and administering the water activities.

The Ad Hoc Committee's recommendations also included the following administrative and organizational recommendations:

- Upgrading the water function in all of its dimensions and creating a central position for it within the state machinery to distribute the responsibilities and absorb the development of systems, projects to meet work requirements. The situation requires the creation of a completely centralized organization for water resources on a national level, encompassing the present departments and organizations. It would be responsible for the administration of water affairs, planning, and coordination between the need of water for human purposes and the need of water for developmental purposes as well as any matter related to the protection and development of water resource.

- In regard to the direction, supervision, follow-up, and planning of general policy for water at the highest level, it is suggested that a supreme council for water be created to be responsible for the study of water projects, making decisions, and supervising the development of strategies to protect water resources.

- In regard to the direction, supervision, follow-up, and planning of general policy for water at the highest level, it is suggested that a supreme council for water be created to be responsible for the study of water projects, making decisions, and supervising the development of strategies to protect water resources.

- Preparing a long-range national water strategy from which a short-term working plan would be derived to determine the ideal utilization of water, the needs of various state developmental projects, the water security policy, and the coordination and integration between these needs.

- Developing various energies and skills to work on numerous aspects of water resources, establishing an incentive, a rewarding scheme to develop human resources and to attract competent personnel.

9607

CSO: 5000/4720

QUAKES HIT BRAVA, FOGO ATLANTIC ISLANDS

Luanda JORNAL DE ANGOLA in Portuguese 10 May 81 p 3

[Excerpts] Earthquakes varying between 5 and 7 on the international scale were registered in the Cape Verdian islands of Fogo and Brava. The phenomenon took place at the end of last month, but the threat of new earthquakes continues, according to an official source. The same spokesman added that this "seismic crisis" reached its culminating point on 19 March, evoking the possibility of eruptions within the volcano on Fogo island and probably at the bottom of the ocean.

A Portuguese team headed by geophysicist Humberto Fonseca visited Cape Verde to study the phenomena that have affected these two islands.

Cape Verdian authorities also requested assistance from UN and French specialised organisms, while the Portuguese team--which has already returned to Portugal--has installed a seismograph in the city of S. Felipe on Fogo island. A French technician installed the same device on Brava island.

Humberto Fonseca, director of the geophysics department of the Portuguese Institute of Geophysics and Meteorology, stated to newsmen that the earthquakes had their epicenter in the Atlantic Ocean in the vicinity of these two islands.

Fonseca added that the quakes may have caused volcanic eruptions in the ocean bottom. They did not cause any victims, but a number of buildings were affected. While the Fogo island volcano has not erupted since (?) 1961, Fonseca does not exclude the possibility of another eruption "at any time."

A Portuguese expert has remained on Fogo island to read the data that the seismograph will detect.

REF ID: A6605014

BRIEFS

LARGE-SCALE AFFORESTATION--Two hundred thousand eucalyptus and pine trees will be planted in the Angonia agro-industrial complex over a 100-hectare area in an afforestation campaign to open in June. In a joint initiative between the provincial fauna and flora directorate and the provincial structures for education and culture, 50 hectares of trees will simultaneously be planted in the Ponte Boa and Didize educational centers. (Excerpt) (Maputo NOTICIAS in Portuguese 22 May 81 p 1)

CSO: 4401

GOVERNMENT WORKING ON ENVIRONMENTAL PROTECTION SYSTEM

Lusaka SUNDAY TIMES in English 24 May 81 p 7

[Text]

ZAMBIA has no comprehensive system to check pollution and other threats to ecology, National Council for Scientific Research secretary-general, Dr Sitali Silangwa has said.

Dr Silangwa said in Lusaka that the Government was now working on an environmental protection system.

A panel of specialists drawn from various Government and parastatal organisations had already been set up to look into a draft prepared by the Ministry of Commerce and Industry, he said.

The document, which has been circulated to the NCSR, was prepared by a consultant last year to examine methods of controlling and checking pollution in the country resulting from rapid industrialisation.

He said the NCSR had established a laboratory to monitor water, air and solid waste pollution.

Dr Silangwa expressed concern over the Kafue sewage plant which he said could not cope with effluent from industrial infrastructure in the area.

Kafue council executive secretary Mr Reuben Hamonga confirmed there was an urgent need to expand the sewage to treat discharge from factories before it was drained into the Kafue river.

Dr Silangwa said although water samples analysed at the NCSR laboratory had proved to be safe for human consumption, it was important that all industrial waste was properly treated before being disposed of into the river.

"We strongly feel there should be a comprehensive law on environmental protection to replace the present system," he said.

The NCSR which has been spearheading the anti-pollution campaign among other research activities has analysed water samples from various sources on the Copperbelt to determine the amount of pollution from industrial waste.

The preliminary tests included air pollution from the mines and other major factories. The surveys were aimed at helping the Ministry of Commerce and Industry on the measures to control pollution.

Dr Silangwa hoped that district councils would be advised by industrialists wishing to set up factories in their areas so that anti-pollution measures could be incorporated into their programmes.

DESTRUCTION OF TIMBER, GRAZING BY BUSH FIRES REPORTED

Salisbury THE HERALD in English 1 Jun 81 p 7

[Text] The Natural Resources Board will soon launch a massive campaign to mobilise the public to help fight the menace of forest and bush fires which destroy thousands of hectares of valuable resources every year.

A poster had been designed and the costs of the campaign worked out, said a spokesman for the NRB, and a leading commercial firm is considering sponsoring the printing.

Children will be involved in the campaign through a competition and will be shown how they can help to ensure the nation's resources are not reduced to ashes.

Latest figures for Matabeleland show 34,983 ha of State-owned hardwood forests, which take decades to regrow, have been wiped out.

A further 25,544 ha of State-owned grass and scrubland in the province was also burnt. In the 12 months up to June last year 3,536 ha of commercial and industrial softwood forest was destroyed, 3,323 by arsonists and 130 by accident.

But these figures are just a small facet of the problem. It is impossible to estimate the total destruction of farming and grazing land and of wildlife. The burnt land can be severely eroded, sending irreplaceable top-soil down the rivers to the sea.

The law gives the courts power to come down heavily on people starting fires, whether deliberately or accidentally. Anyone wilfully lighting a fire in any forest faces a \$4,000 fine or 10 years' jail or both.

Those deliberately cutting down trees or interfering with beacons and fences can be fined \$800 or jailed for two years and those who accidentally break the law face a \$400 fine or six months' jail or both.

On Tuesday the Upper Umguasa group of Intensive Conservation Committees called for more NRB publicity, especially for this year because the heavy rains have supported a good grass cover, which will be a great fire risk when it dries out.

The NRB has written to the ICAs telling them of the planned campaign to save their most valuable crop, the grass the cattle eat.

SULPHURIC ACID POLLUTION INCREASES IN HELSINKI AREA

Helsinki UUSI SUOMI in Finnish 30 Apr 81 p 8

[Text] Sulphur pollution of the capital district's air has nearly doubled during this decade. Not a single plant has devices for the elimination of sulphur from chimney gases in operation. Ninety-five percent of the sulphur is given off into the atmosphere.

In the near future the sulphur content of the air may become critical in certain areas of the capital district.

This was affirmed in the program of air protection goals for the capital district made public on Wednesday. In an extensive report and list of objectives prepared by the YTV [expansion unknown], the establishment of a basic air pollution detection network is proposed.

To measure pollution, in 5 years time they would acquire 13 fixed metering stations at an overall cost of over a million marks. Annual operating costs would come to from 200,000 to 300,000 marks altogether.

In addition to basic detection stations, mobile inspection stations are needed. At the press conference it was also proposed that a so-called comparison station on the coast or the offshore islands be set up where the results of local metering could be compared.

In addition to the sulphur dioxide content of the air, metering stations suspended in the atmosphere would be studied. Three of these are needed.

The stations would be automated and the data analyzed by computer. The YTV report proposes that the job be taken care of by the YTV. Possibly too, Meteorological Institute experience and facilities could be utilized.

21,400
240: 470 / 1122

SWEDEN

ENVIRONMENT AGENCY DISCOVERS DIOXINS IN U.S. 2,4-D PESTICIDES

Stockholm DAGENS NYMETER in Swedish 23 May 81 p 28

[Article by Bo G Andersson]

[Text] The trichlorophenoxyacetic acid 2,4-D may contain the dangerous poison dioxin. This was shown in a test undertaken by order of the Swedish Environment Protection Agency.

The 2,4-D preparation is the dominant herbicide used in Swedish forestry. It is also being used in gardens and orchards and in agriculture.

The results are surprising seeing that the Swedish Product Control Board has hitherto ruled out the possibility that dioxins may pollute the trichlorophenoxyacetic acid 2,4-D during the manufacturing process.

The investigations undertaken by order of the Swedish Environment Protection Agency comprise some twenty different 2,4-D preparations which constitute a representative selection of those found on the Swedish market. The analyses were carried out by a laboratory at the University of Stockholm.

In most tests, dioxin has been encountered in quantities close to the level which may be registered by measuring instruments, viz. approximately 3 to 4 micrograms per kilo. However, one preparation deviated strongly from the rest. It contained 800 micrograms of dioxin per kilo of trichlorophenoxyacetic acid.

New Findings in Canada

The background to this investigation are new discoveries in Canada, according to which close to 4,000 micrograms of dioxin per kilo were found in some 2,4-D preparations.

The Canadian findings were published 2 months ago and were like a dash of cold water to the Product Control Board of the Swedish Environment Protection Agency. It was at that point that the initiative was taken for the said analyses, the first to be undertaken of 2,4-D preparations in Sweden.

The Canadian Environment Protection Agency is considering banning completely the use of 2,4-D as a result of the recent findings.

The fact that dioxin residues are now also being encountered in preparations on the Swedish market does not, however, alarm the Swedish Environment Protection Agency.

"The Swedish analyses have instead reassured us. For the amounts are, of course, very low, and the highest levels are 4 to 5 times below the highest levels discovered in Canada," says Departmental Manager Bo Wahlstrom of the Product Control Board of the Swedish Environment Protection Agency.

The results of the Swedish tests will be considered by the Product Control Board, which is the authority that will decide whether or not a certain preparation is to be withdrawn from the market.

The dioxin debate has, so far, been largely concerned with the trichlorophenoxyacetic acid 2,4-D (hormoslyr) which contains residues of the dioxin TCDD (known from the Seveso accident). Hormoslyr was banned some years ago because of the dioxin pollutants.

There are 75 different dioxins, of which TCDD is regarded as the most dangerous one. It may cause genetic injury, damage to the unborn infant, contribute to the development of cancer, and disturb the ability of the liver to store vitamin A. One microgram per kilo is a deadly dose to a guinea-pig.

"It is important to remember that the dioxins encountered in Canada and Sweden are less poisonous than TCDD," says Bo Wahlstrom.

Everything Imported

In 1979 a total quantity of 71,000 kilos of the topical trichlorophenoxyacetic acid 2,4-D was sold in Sweden. The entire quantity had been imported-- from West Germany, Great Britain, Denmark, Austria, and the United States.

Slightly more than half the imported quantity, viz. 40,000 kilos, was used in 1979 to combat unwanted vegetation in forestry. In 1980, however, a temporary spraying stoppage was introduced in forestry. The stoppage has been extended to include this year's season as well.

In 1979, agriculture used 27,000 kilos of 2,4-D, while 4,000 kilos were used for spraying home gardens. Trichlorophenoxyacetic acid is included in the arsenal of poisons this summer as well.

Swedish law makes it possible for the Environment Protection Agency to obtain back information as to which preparations of the trichlorophenoxyacetic acid 2,4-D contain the dioxin pollutant. Last Friday, the Product Control Board declined categorically to state which preparations were included in the study now completed.

ACIDIFICATION OF SOUTHWEST WATERS, FOREST NEARS CRISIS

Stockholm DAGENS NYHETER in Swedish 12 May 81 p 22

[Article by Ingvar Andersson]

[Text] Forest and water pollution in southern and western Sweden is now so serious that nature's own ability to resist it is coming to an end. Large areas in Blekinge, Smaland, Bohuslan, western West Gotland, Dalsland and western Varmland lost 80 percent of their natural resistance in the 1900's and are now running the risk of dying.

This is according to a report on acidification of earth and water prepared by the Environmental Protection Agency in Blekinge province.

"The cup is about to run over," according to Karin Brunsberg, the director of Blekinge Environmental Protection Agency, who headed the acidification study.

"By exceeding the small margins still available, earth metals will begin to leak out and cause serious damage, most of all in the forests," said Brunsberg.

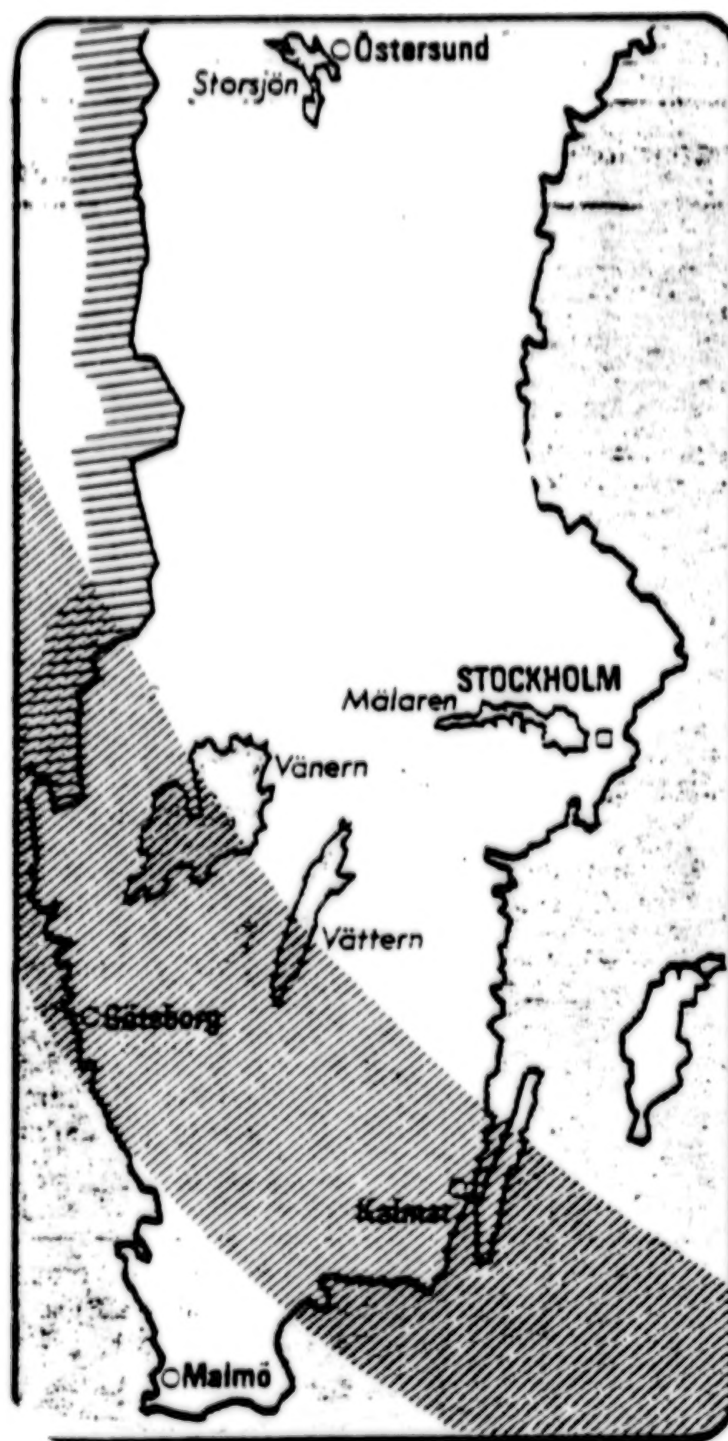
Karin Brunsberg feels that this development is inexorable.

"Acidification will continue for the next 20 years in spite of considerable efforts to stop it," she said. "Lime can save some lakes. Planting foliage trees can save some forests. But the only effective measure is to stop the emission of acid.

Even if Sweden were to stop all acid emission, we would continue to get acid pollution from Europe for at least another 20 years," said Karin Brunsberg. "European countries will not spend billions on purification equipment just out of kindness toward Sweden. Only when they realize that they themselves are affected as severely as we are will something be done about it."

Approximately 25 percent of the sulphuric acid fallout that affects Sweden is of domestic origin. The rest of it comes from foreign countries--primarily Poland, East and West Germany, Denmark, Holland, Belgium, France and England.

The Blekinge study shows that the sulphuric acid fallout is equally as harmful near the source of pollution as it is at some distance.



Soil and water acidification in southern and western Sweden is now so serious that nature's ability to resist it is about to come to an end. Within large areas, 80 percent of the natural resistance was lost during the 1900's. There are indications that soil, forests and lakes in these areas are in the process of dying.

It is impossible to avoid sulphuric acid fallout by erecting tall chimneys in connection with oil and coal burners--a philosophy that has been applied for several decades, both in Sweden and abroad.

Measurements taken near the oil-fired power plant in Karlshamn points to declining growth in the forests there. Spruce growth has been adversely affected within a radius of 17 kilometers and pine within a radius of 40 kilometers.

"We have noted an obvious decline in the productivity of the soil around the power plant," said Karin Brunsberg. "The biological process has been halted or stopped.

We have also noted that spruce recovers when pollution is reduced, but pine does not. This is a serious statement since the forest industry is largely dependent upon pine."

The provincial government in Blekinge feels the environmental destruction now is such that community planning in general has been affected: the water supply, agriculture, forestry, fishing and recreational possibilities.

"In all seriousness, we must now begin to realize that remaining natural resources will determine the extent of community developments," said Karin Brunsberg.

The national Environmental Protection Agency is seriously viewing the information in Karin Brunsberg's report.

"This is the most serious natural catastrophe we have ever had in Sweden," said water inspector William Dickson with the national Environmental Protection Agency, which is pursuing the problems associated with acidification.

"Acidification has been a gradual phenomenon but has developed much more rapidly the last few years," said Dickson. "When biological life begins to die you have a catastrophic situation and that is where we are today.

"And people are directly affected through contaminated ground water and through metal poisoning from copper in the water pipes."

The Blekinge report points to imminent risks of aluminum leakage from the acid soil which will poison the forests. A very large part of the spruce forest in West Germany has been poisoned in this manner and is about to die.

"There is a substantial risk that this is about to happen in Sweden too," said William Dickson.

"Certain indications during the seventies--which at first were thought to be drought-related--warned that the catastrophe situation was already underway here too. If our fears are correct, it will mean very serious economic consequences."

SWEDEN

PHENOXY HERBICIDES SEEN TO CAUSE CANCER

Stockholm DAGENS NYHETER in Swedish 14 May 81 p 32

[Text] Phenoxy herbicides cause cancer, according to a doctoral dissertation submitted to Umea University last Friday. The risk of contracting cancer is four to six times greater for persons who work with phenoxy herbicides.

Even persons who have not worked with these herbicides have been affected. Cancer patients include people who have used phenoxy herbicides to kill garden weeds a couple of days a year.

The dissertation was written by Dr Lennart Hardell. He earlier published "Phenoxy Herbicides and Cancer," which partly dealt with the so-called soft-tissue sarcoma--a cancer that grows in muscles and fatty tissue--and partly lymph-gland cancer.

In response to criticism from the Environmental Protection Agency and the Office of Chemistry, Hardell has now made another study.

Critics have said that people who contract cancer more often say they have worked with chemical preparations--like phenoxy herbicides--than do others. Healthy persons, on the other hand, tend not to remember having been in contact with chemicals.

Hence, Hardell made a study of persons who have intestinal cancer. He asked them the same questions he did patients with soft-tissue sarcoma or lymph-gland cancer.

No Connection

If the critics were right, the study would have shown a connection between phenoxy herbicides and intestinal cancer. But there was no such connection.

Hardell's studies include people who were engaged in forestry or agriculture. They were either directly involved with spraying or they worked in areas that had just been sprayed.

He points out it is not only the phenoxy herbicides 2, 4, 5-T, now banned in Sweden, that heighten the risk of cancer, but also 2, 4-D and MCPA now in use.

The last two herbicides can also be purchased for use in the average garden. Lennart believes these herbicides should also be banned.

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